REMARKS

Summarizing this amendment, Claims 1 - 45 have been cancelled and Claims 46 - 74 have been added. Thus, Claims 46 - 74 are presented for the examiner's consideration.

The examiner rejected most of the original claims under 35 USC 102 for describing constructions that he considered to be no different from JP 2001-336606 (Yokota) or US 6,659,651 (Turner). The remaining claims he rejected for describing a construction that he considered to be obvious within the meaning of 35 USC 103 in view of Yokota or Turner considered along with US 5,269,731 (Scudder).

New independent Claim 46 calls for a differential having an internally threaded bearing seat in a housing and an antifriction bearing in that seat for supporting a differential carrier so that the carrier can rotate in the housing about an axis. That much holds true for just about any differential. But the claim also specifies that the bearing seat contains an internal thread, whereas the outer race of the antifriction bearing has an external thread and alongside it a cylindrical surface. According to the claim, the external thread of the bearing race engages the internal thread of the bearing seat, while the cylindrical surface on the outer race lies along the crests of the internal thread in the bearing seat. This arrangement enables the axial position of the outer race to be changed and with it the setting of the bearings simply by rotating the race, and as the application on page 12 explains, enables axial loads to transfer through the engaged threads — and the bearing will experience axial loads, if for no other reason than the inclination of the raceways along which the rolling elements roll. The arrangement also accommodates radial and tilting loads through the cylindrical surface and the crests of the threads in the internal

bearing seat along which the cylindrical surface lies, as the application on page 12 goes on to explain. For a further insight into the operation of the bearings, see the attached paper prepared by one of the inventors. The arrangement provides compactness and adjustability, and despite the compactness affords good load transfer between the bearing and housing. Neither Yokota nor Turner discloses the arrangement set forth in Claim 46.

Yokota shows a differential having a tapered roller bearing 1 that supports its carrier or case 34 in a housing 32. The bearing 1 has an outer race or ring 11, and while that race is provided with a tapered raceway along which tapered rollers 13 roll, it is otherwise of somewhat unusual configuration. Indeed, it is excessively long. Around its raceway the outer ring 11 has a cylindrical exterior surface or OD, as do conventional bearing cups, but the outer ring 11 extends axially significantly beyond the small end of its raceway, and here it carries an external thread 11d. That thread engages an internal thread 32a in the housing 32. No portion of the cylindrical surface on the outer race or ring 11 lies along the internal thread 32a of the housing 32, and it appears that the diameters of the threads 11d and 32a are such that the cylindrical external surface of the outer ring 11 could not lie along the internal thread 32a. Claim 46, on the other hand, requires that the outer race has a cylindrical surface that lies along the crests of an internal thread in a bearing seat.

The Turner patent shows a differential 10 including a carrier or case 20, which contains the differential gearing, supported on two tapered roller bearing 36 and 38, each having a cup 76, 78 provided with external threads 84 on its exterior surface. Those threads engage threads in the housing 12, so by turning the cups 76, 78 of the two bearing 36, 38, one can achieve a

"predetermined alignment position" (col. 5, lines 24, 44), whatever that means. Neither of the cups 76, 78 on its exterior has a cylindrical surface, much less a cylindrical surface that lies along the crests of an internal thread as the claim requires, and this detracts from the stability of the cups 76, 78. In other words, the cups 76, 78 do not take radial or tilting loads well.

By reason of the full thread in the bearing seat and the combination thread and cylindrical surface on the outer race that fits into the bearing seats, applicants' bearings are easily adjusted, yet transfer both radial and thrust (axial) loads, all without increasing the size of the bearings or the differential. Indeed, the differential may assume a more compact configuration. This concept is not disclosed or suggested in the Yokota or Turner patents. Hence, Claim 46 is believed to be allowable.

Claims 47 - 54 depend from Claim 46 and are likewise believed to be allowable for the reasons advanced in the discussion of Claim 46. Apart from that, Claims 47, 51 and 52 set forth the fits between the internal thread of the bearing seat, on one hand, and the external threads and cylindrical surface of the outer race, on the other. Those fits are not addressed in the cited references. Claims 47, 51 and 52 are neither anticipated nor rendered obvious by the references. Dependent Claim 53 states that both the external thread and the cylindrical surface of the outer race lie around or surround the raceway of the inner race. Turner has no cylindrical surface, while the external thread on the outer race of Yokota is offset axially from the raceway of that outer race, enlarging the bearing considerably.

Independent Claim 55, although being more specific to the construction of the differential than Claim 46, requires outer races — indeed, two outer races — each having both an external

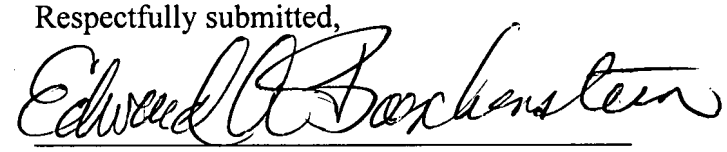
thread and a cylindrical surface, with the external thread engaging the internal thread of a bearing seat and the cylindrical surface lying along the crests of the internal thread. Claims 55, 78 are believed to be allowable for the reasons advanced in the discussion of Claim 46 as are Claims 56 - 63, which depend from Claim 55.

The same holds true for independent Claim 64 and its dependent Claims 65 - 74.

The claims now in the application are believed to possess the clarity required by 35 USC 112. Expressions such as "presented away from the axis" or "presented toward the axis" are perfectly clear. A tapered or inclined raceway inherently as a large and a small end.

In view of the foregoing, favorable consideration and allowance of the application with 29 claims — namely, Claims 46 - 74 — are respectfully requested.

Respectfully submitted,



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